

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TYLER DIVISION**

**NETWORK-1 SECURITY SOLUTIONS,
INC.**

Plaintiff,

vs.

CISCO SYSTEMS, INC., ET AL

Defendants.

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CASE NO. 6:08CV30

MEMORANDUM OPINION AND ORDER

This Memorandum Opinion construes the disputed terms in U.S. Patent No. 6,218,930 (the “’930 Patent”). The Court further **GRANTS** in part and **DENIES** in part Defendants’ Motion for Partial Summary Judgment of Invalidity for Indefiniteness (Docket No. 206).

BACKGROUND

The ’930 Patent issued on April 17, 2001 to Boris Katzenberg and Joseph Deptula. The ’930 Patent discloses a set of circuits that enable the delivery of operating power over Ethernet (commonly referred to as “PoE”) only to those access devices that are designed to accept such power. PoE technology is not new. PoE delivers both data and operating power to network access devices over an Ethernet network, allowing devices such as voice over IP telephones, security cameras, etc. to be mounted in areas without regard for whether there is an adequate separate power supply for the devices.

The problem with traditional PoE systems is that damage can occur when power is delivered to an access device that is not designed to accept it. The ’930 Patent provides “methods and

apparatus for reliably determining if a remote piece of equipment is capable of accepting remote power.” ’930 Patent, col.1:41–44. “It is another object of this invention to provide methods and apparatus for delivering remote power to remote equipment over 10/100 switched Ethernet segments and maintain compliance with the IEEE 802.3 standards.” *Id.* at 1:45–48.

This case is the second lawsuit that involves the ’930 Patent. Prior to this case, Network-1 Security Solutions, Inc. (“Network-1”) brought suit in August 2005 and alleged infringement of the ’930 Patent. The Court construed the disputed terms of the ’930 Patent in November 2006. *Network-1 Sec. Solutions, Inc. v. D-Link Corp. & D-Link Sys., Inc.*, Case No. 6:05cv291, Memorandum Opinion and Order (Docket No. 137) (E.D. Tex. Nov. 20, 2006) (the “*D-Link* case”). In the present case, Network-1 alleges that Cisco Systems, Inc., Cisco-Linksys, L.L.C., Adtran, Inc., Enterasys Networks, Inc., Extreme Networks, Inc., Foundry Networks, Inc., Netgear, Inc., and 3Com Corporation (collectively, “Defendants”) infringe Claims 1, 2, 6, and 9 of the ’930 Patent.¹

APPLICABLE LAW

“It is a ‘bedrock principle’ of patent law that ‘the claims of a patent define the invention to which the patentee is entitled the right to exclude.’” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Innova/Pure Water Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). In claim construction, courts examine the patent’s intrinsic evidence to define the patented invention’s scope. *See id.*; *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 861 (Fed. Cir. 2004); *Bell Atl. Network Servs., Inc. v. Covad Commc’ns Group, Inc.*, 262 F.3d 1258, 1267 (Fed. Cir. 2001). This intrinsic evidence includes the claims themselves, the specification, and the prosecution history. *See Phillips*, 415 F.3d at 1314; *C.R. Bard, Inc.*, 388 F.3d

¹ Claims 1, 2, 6, and 9 of the ’930 Patent are reproduced in Appendix A.

at 861. Courts give claim terms their ordinary and accustomed meaning as understood by one of ordinary skill in the art at the time of the invention in the context of the entire patent. *Phillips*, 415 F.3d at 1312–13; *Alloc, Inc. v. Int’l Trade Comm’n*, 342 F.3d 1361, 1368 (Fed. Cir. 2003).

The claims themselves provide substantial guidance in determining the meaning of particular claim terms. *Phillips*, 415 F.3d at 1314. First, a term’s context in the asserted claim can be very instructive. *Id.* Other asserted or unasserted claims can also aid in determining the claim’s meaning because claim terms are typically used consistently throughout the patent. *Id.* Differences among the claim terms can also assist in understanding a term’s meaning. *Id.* For example, when a dependent claim adds a limitation to an independent claim, it is presumed that the independent claim does not include the limitation. *Id.* at 1314–15.

“[C]laims ‘must be read in view of the specification, of which they are a part.’” *Id.* (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc)). “[T]he specification ‘is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.’” *Id.* (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)); *Teleflex, Inc. v. Ficoso N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002). This is true because a patentee may define his own terms, give a claim term a different meaning than the term would otherwise possess, or disclaim or disavow the claim scope. *Phillips*, 415 F.3d at 1316. In these situations, the inventor’s lexicography governs. *Id.* Also, the specification may resolve ambiguous claim terms “where the ordinary and accustomed meaning of the words used in the claims lack sufficient clarity to permit the scope of the claim to be ascertained from the words alone.” *Teleflex, Inc.*, 299 F.3d at 1325. But, “[a]lthough the specification may aid the court in interpreting the meaning of disputed claim language, particular

embodiments and examples appearing in the specification will not generally be read into the claims.” *Comark Commc’ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998) (quoting *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1571 (Fed. Cir. 1988)); see also *Phillips*, 415 F.3d at 1323. The prosecution history is another tool to supply the proper context for claim construction because a patent applicant may also define a term in prosecuting the patent. *Home Diagnostics, Inc., v. Lifescan, Inc.*, 381 F.3d 1352, 1356 (Fed. Cir. 2004) (“As in the case of the specification, a patent applicant may define a term in prosecuting a patent.”).

Although extrinsic evidence can be useful, it is “less significant than the intrinsic record in determining the legally operative meaning of claim language.” *Phillips*, 415 F.3d at 1317 (quoting *C.R. Bard, Inc.*, 388 F.3d at 862). Technical dictionaries and treatises may help a court understand the underlying technology and the manner in which one skilled in the art might use claim terms, but technical dictionaries and treatises may provide definitions that are too broad or may not be indicative of how the term is used in the patent. *Id.* at 1318. Similarly, expert testimony may aid a court in understanding the underlying technology and determining the particular meaning of a term in the pertinent field, but an expert’s conclusory, unsupported assertions as to a term’s definition is entirely unhelpful to a court. *Id.* Generally, extrinsic evidence is “less reliable than the patent and its prosecution history in determining how to read claim terms.” *Id.*

The patent in suit also contains a means-plus-function limitation that require construction. Where a claim limitation is expressed in “means plus function” language and does not recite definite structure in support of its function, the limitation is subject to 35 U.S.C. § 112, ¶ 6. *Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1424 (Fed. Cir. 1997). In relevant part, 35 U.S.C. § 112, ¶ 6 mandates that “such a claim limitation ‘be construed to cover the corresponding structure . . .

described in the specification and equivalents thereof.” *Id.* (citing 35 U.S.C. § 112, ¶ 6). Accordingly, when faced with means-plus-function limitations, courts “must turn to the written description of the patent to find the structure that corresponds to the means recited in the [limitations].” *Id.*

Construing a means-plus-function limitation involves multiple inquiries. “The first step in construing [a means-plus-function] limitation is a determination of the function of the means-plus-function limitation.” *Medtronic, Inc. v. Advanced Cardiovascular Sys., Inc.*, 248 F.3d 1303, 1311 (Fed. Cir. 2001). Once a court has determined the limitation’s function, “the next step is to determine the corresponding structure disclosed in the specification and equivalents thereof.” *Id.* A “structure disclosed in the specification is ‘corresponding’ structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim.” *Id.* Moreover, the focus of the “corresponding structure” inquiry is not merely whether a structure is capable of performing the recited function, but rather whether the corresponding structure is “clearly linked or associated with the [recited] function.” *Id.*

CLAIM TERMS

Data node

Claims 1, 2, and 6 of the ’930 Patent contain the term “data node.” Network-1 contends that the term means “Ethernet switch or hub,”² while Defendants contend that it means “data switch or hub.” The parties disagree whether or not the term “data node” is limited to an Ethernet environment.

² This construction of “data node” was adopted by the Court in the *D-Link* case. However, in that case, the construction was agreed on by the parties, and the Court did not resolve whether or not the term was limited to an Ethernet environment.

Network-1 asserts that the specification repeatedly describes an Ethernet limitation, which makes it a requirement of the claim scope. Defendants counter that the claims do not recite an Ethernet limitation, and that although the preferred embodiment is in the context of an Ethernet system, the specification does not characterize the invention as a whole to include an Ethernet limitation. Defendants also argue that restricting the term to the preferred Ethernet embodiment improperly imports a limitation from the specification.

The '930 Patent does not describe the Ethernet as a feature of the present invention as a whole, which is required to limit the scope of the claimed invention. *See Honeywell Int'l., Inc. v. ITT Indus.*, 452 F.3d 1312, 1318–19 (Fed. Cir. 2006); *Scimed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1343 (Fed. Cir. 2001). The specification more broadly refers to a variety of telecommunications and data communications equipment and a desire to remotely power data network devices from a centrally powered system during power outages. '930 Patent, col. 1:22–40. Additionally, the specification sets forth a general objective of determining if remote equipment is capable of accepting remote power followed by a specific objective of delivering power over switched Ethernet segments in accordance with IEEE 802.3 standards. *See id.* at 1:41–48. The Summary of the Invention implies that Ethernet power is in accordance with only the specific objective, not the general objective. *See id.* at 1:51–59. The scope of the invention as a whole is not limited to Ethernet power, and other network topologies do not preclude use of the claimed invention. Accordingly, Ethernet is not a proper limitation, and the Court adopts Defendants' construction and construes the term “data node” to mean “data switch or hub.”

Access device

Claims 1, 2, 6, and 9 of the '930 Patent contain the term "access device." Network-1 contends that the term means "a device that can access an Ethernet network," while Defendants contend that it means "a piece of equipment that requires power to access a network and to receive and transmit data." The parties disagree whether or not the term "access device" is limited to an Ethernet network and whether or not it can receive and transmit data.

Network-1 asserts that the ordinary and customary meaning of the term is merely a device that can access. Further, Network-1 asserts that, in the context of the claim limitation as a whole, the term means a device adapted to access a data network, particularly an Ethernet network. Defendants counter that the Court's construction in the *D-Link* case, which Network-1 then agreed to, remains proper because it is consistent with the specification and inclusion of an Ethernet requirement is improper.

Inherent in the term "'access device' adapted for data transmission" is the fact that the device requires electrical power to operate. *See* '930 Patent, col. 4:13. Network-1's construction, other than the improper inclusion of "Ethernet" as addressed in the discussion of the term "data node," adds nothing beyond the understandable meaning of the term itself. Defendants' construction, which Network-1 agreed to in the *D-Link* case, adds the superfluous recitation of "a piece of equipment that requires power." This language repeats what the claim element itself states, so the Court will adopt a simpler, clearer definition than it did in the *D-Link* case. Accordingly, the Court construes the term "access device" to mean "a device that can receive and transmit data over a network."

Main power source

Claims 1 and 6 of the '930 Patent contain the term “main power source.” Network-1 contends that the term needs no construction or, in the alternative, means “source of main power,” while Defendants contend that it means “a DC power source that provides the specified power for the data node and the low level current delivered to the access device.” The parties disagree whether or not the term “main power source” is limited to DC power.

Network-1 asserts that Defendants' construction is vague as to “specified power” and limits “main power source” to be a DC power source without support in the specification for making that limitation. If the term is construed, Network-1 also asserts that its construction should be adopted because “main” and “secondary” refer to supplying power for two different operating modes. Defendants counter that, in the context of the claim as a whole, the term is restricted to a DC power source. Further, Defendants argue that Network-1's assertion that “main” and “secondary” refer to a single power-providing device with two operating modes is inconsistent with both the claims and the specification.

The claim language specifies that the main power source is “connected to supply power to the data node.” '930 Patent, col. 4:17–18. Figure 3 below shows that the main power source is a source of DC power.

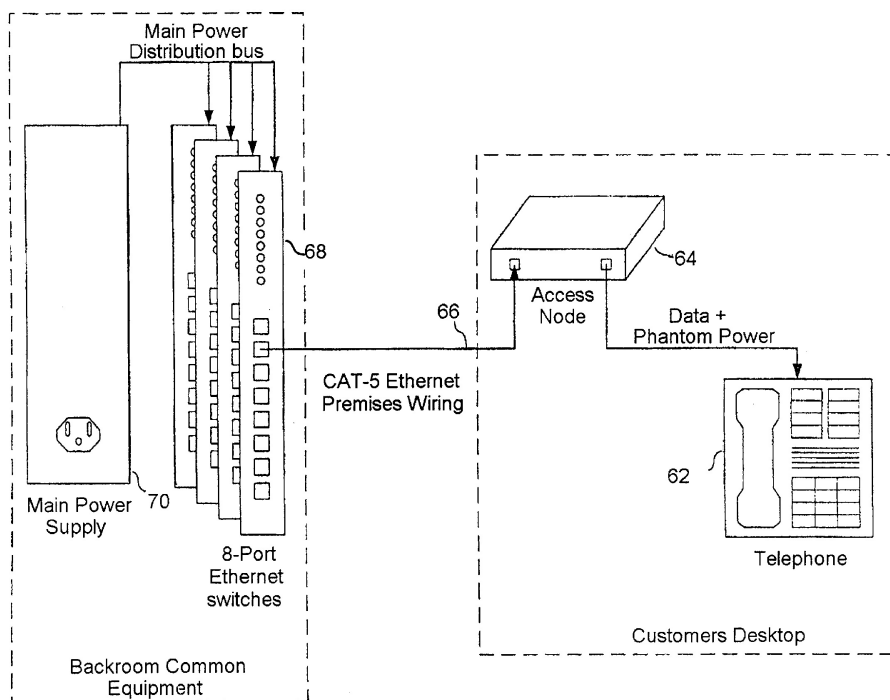


Figure 3 of the '930 Patent

In Figure 3, main power supply 70 is energized from an AC electrical outlet connection to deliver “main” power to the 8-Port Ethernet switches 68, which have secondary power sources. The words “source” and “supply” are used interchangeably in the '930 Patent as seen in Claim 4, which refers to the “source” from Claim 1 as “said . . . supply.” *See* '930 Patent, col. 4:19, 4:44–45. Figure 1 showing Power Source 16 is not a separate embodiment of the invention, as the specification states that “Fig[ure] 3 illustrates the physical layout of components corresponding to” Figure 1, where Figure 1 is merely a “simplified schematic diagram.” '930 Patent, col. 3:59–60, 2:21–25.

Network-1 attempts to construe the term broadly to include an AC electrical outlet as a “main power source,” but a construction of such a breadth is inconsistent with the specification. *See Wang Labs., Inc. v. Am. Online, Inc.*, 197 F.3d 1377, 1383 (Fed. Cir. 1999) (stating that “[t]he usage ‘preferred’ does not of itself broaden the claims beyond their support in the specification” and

finding that “the claims were correctly interpreted as limited” to “[t]he only embodiment described in the . . . specification”). Further, the construction of “main power source” cannot be broader than what the inventors actually invented, as determined from the scope of the disclosure in the specification. *See Netword, LLC v. Centraal Corp.*, 242 F.3d 1347, 1352 (Fed. Cir. 2001) (stating that “[a]lthough the specification need not present every embodiment or permutation of the invention and the claims are not limited to the preferred embodiment of the invention, . . . neither do the claims enlarge what is patented beyond what the inventor has described as the invention”).

The remainder of Defendants’ construction, “that provides the specified power for the data node and that the low level current delivered to the access device,” is superfluous, as the information is contained in the claim itself, which specifies that power is supplied by the main power source to the data node and the low level current is delivered from the main power source. *See, e.g.*, ’930 Patent, col. 4:17–18, 4:22–23. Accordingly, the Court construes the term “main power source” to mean “a DC power source.”

Secondary power source

Claims 1, 2, 6, and 9 of the ’930 Patent contain the term “secondary power source.” Network-1 contends that the term means “source of secondary power; the secondary power source need not be physically separate from the main power source,” while Defendants contend that it means “a source of power connected to provide power between the data node and the access device using the data signaling pair. The secondary power source is physically separate from the main power source.” The parties disagree whether or not the term “secondary power source” requires the secondary power source to be physically separate from the main power source.

Network-1 asserts that since the *D-Link* case, Federal Circuit cases have demonstrated that the “secondary power source” need not be physically separate from the “main power source.” *See, e.g., Linear Tech. Corp. v. ITC*, 566 F.3d 1049, 1055 (Fed. Cir. 2009) (holding that the terms “second circuit” and “third circuit” do “not require entirely separate and distinct circuits” with each “requir[ing] a specific structural requirement”); *Oatey Co. v. IPS Corp.*, 514 F.3d 1271, 1275 (Fed. Cir. 2008) (holding that the term “first and second juxtaposed drain ports” does not require “two separate identifiable physical elements”). Network-1 also asserts that the claim language does not specify that the sources are physically separate, and inclusion of this limitation in the construction excludes a preferred embodiment from the scope of the claim. Finally, Network-1 asserts that the claim refers to a secondary mode of operation, not to a separate connection.

Defendants counter that the claims recite two distinct power sources that must be physically separate, where the main power source supplies power to the data node and the secondary power source supplies power from the data node. Defendants also argue that the Federal Circuit cases cited by Network-1 do not support its position because they involve embodiments where components are shared. Finally, Defendants argue that there is no support for Network-1’s contention that two modes of operation of a single power source are being described in the ’930 Patent.

The Federal Circuit cases cited by Network-1 are inapposite. Unlike in *Linear*, the terms at issue in this case are not “second” and “third” as mere identifiers; rather, the terms “main” and “secondary” set forth an operational hierarchy. Furthermore, the Court’s construction in the *D-Link* case does not impose a requirement of “*entirely* separate and distinct.” *Linear*, 566 F.3d at 1055 (emphasis added). Unlike in *Oatey*, the Court’s construction in the *D-Link* case does not require “separate *identifiable* physical elements” for each of the power sources. *Oatey*, 514 F.3d at 1275

(emphasis added). The Court's construction in the *D-Link* case requires only that there be physically separate "driving points" because each power source "drives" a separate load. *Network-1 Sec. Solutions, Inc. v. D-Link Corp. & D-Link Sys., Inc.*, Case No. 6:05cv291, Memorandum Opinion and Order (Docket No. 137) (E.D. Tex. Nov. 20, 2006). The hierarchy of "main" and "secondary" also indicates a physical separateness, particularly because two different loads (the data node and the access device) are being driven. This is true even though the electrical energy applied to the access device via the data node originates from the main power source.

Network-1 is incorrect that an embodiment is excluded with the requirement of physical separateness. The argument is based on Power Source 16 in Figure 1, which Network-1 asserts shows that the main and secondary power sources are the same. Although Power Source 16 is depicted as a single power source in Figure 1, it must provide the electrical energy that goes to both the data node and the access device. *See* '930 Patent, fig. 1. Thus, the functional block diagram of Figure 1 does not identify where the main and secondary power sources are located, nor how they are physically arranged.

The functional block diagram of Figure 1 is shown in detail in Figure 3 where main power supply 70 supplies power to Ethernet switches 68. '930 Patent, col. 3:66–4:1. Ethernet switches 68 include the power detector 22 of Figure 1 and the power supply 34 of Figure 2. *Id.* at 4:1–4. In Figure 2, the feed and return lines of the remote power supply are identified as lines 39 and 45, respectively. *Id.* at 3:37–38. The RJ45 connector 43 of Figure 2 is specified for a network cable connection using the CAT-5 Ethernet Premises Wiring of Figure 3. *See id.* at figs. 2–3. The feed line corresponds to line 18 in Figure 1, and the return line corresponds to return path 20 in Figure 1. *Id.* at 2:52–59. Thus, Figure 1, when read in conjunction with Figures 2 and 3 by one of ordinary

skill in the art, does not show an embodiment without separate power sources. Instead, the figures show a clear hierarchy of the main power source, then the secondary power source to the data node, and finally the access device from the data node.

Figure 2 below identifies terminals 6 and 3 as an active pair and, similarly, terminals 1 and 2 as an active pair. '930 Patent, col. 3:31–37. Ethernet networks utilize at least two signaling pairs. *See id.* at 1:56–58. Delivering supply power from the data node via the data signaling pairs to the access device, which is the operative arrangement of the secondary power source, finds support in the specification discussing Figure 2. *See id.* at 3:28–42. The disclosure of transformers between the feed and return lines and the data signaling pairs also implies physical separateness. *See id.* The arrangement of transformers electrically isolates the electrical load of the access device from the electrical load of the data node. Thus, electrically separate power sources are established for the data node (from the main power source) and the access device (from the secondary power source).

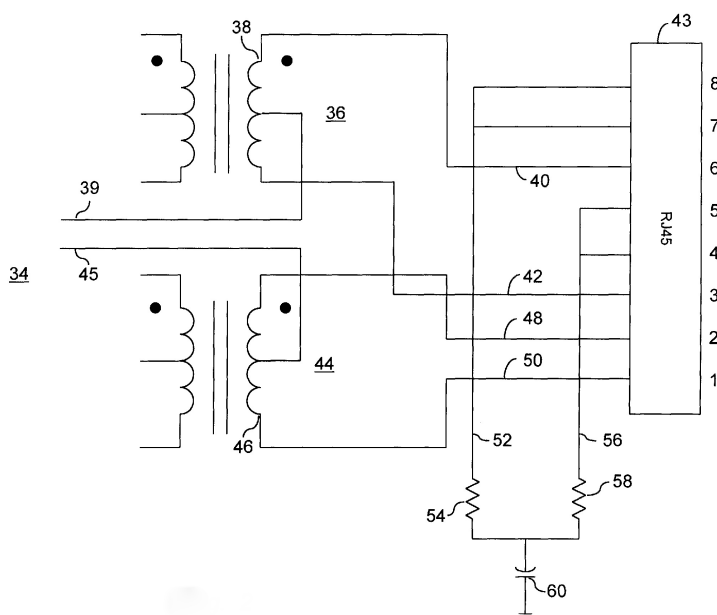


Figure 2 of the '930 Patent

Thus, the main power source in the disclosed embodiment is main power supply 70 of Figure 3, and the secondary power source is power supply 34 of Figure 2. *See* '930 Patent, figs. 2–3. The primary power to drive the data node established by the Ethernet switches 68 is provided by the connection of the Main Power Distribution Bus in Figure 3. *See id.* at fig. 3. The secondary power to drive the access device is provided by the RJ45 connector in Figure 2 at the end of the CAT-5 Ethernet Premises Wiring in Figure 3. *See id.* at figs. 2–3.

Finally, the claim language specifies that a low level current is supplied from the main power source to the access device over the data signaling pair. '930 Patent, col. 4:22–25. This indicates that, in view of the other claim elements as to the secondary power source, the secondary power source is physically separate from the main power source. *See id.* at 4:10–29. The element that supplies power to the access device is the secondary power source. *Id.* at 4:19–21. In light of the specification, the claim language indicates that the secondary power source is used between the main power source and the access device as a type of controlled valve for electrical energy applied from the main power source to the access device. Claim 4 is more specific than Claim 1 in placing the secondary power source in the data node. *See id.* at 4:43–45. Claim 4 further confirms the indication in Figure 3 that power supply 34 of Figure 2 is the secondary power source. *See id.* at fig. 2. Accordingly, the Court adopts its previous construction in the *D-Link* case and Defendants' construction and construes the term "secondary power source" to mean "a source of power connected to provide power between the data node and the access device using the data signaling pair. The secondary power source is physically separate from the main power source."

Low level current

Claims 1 and 6 of the '930 Patent contain the term "low level current." Network-1 contends that the term means "a current at a level that is sufficiently low that it will not (a) operate the access device, or (b) damage an access device that is not designed to accept power through the data signaling pair," while Defendants contend that it means "a current sufficient to cause the access device to start up, but not sufficient to sustain the start up." The parties disagree what level of current the term "low level current" requires.

Network-1 asserts that Defendants' construction defeats the objective of the '930 Patent to use a low level current that will not cause damage to an access device that cannot accept remote power. Network-1 also asserts that Defendants' construction is improperly derived from the described operative effect of the preferred embodiment in response to a low level current. Defendants counter that the objective is to determine whether an access device can accept remote power, and Network-1's construction is inconsistent with that objective. Defendants also argue that the specification does not describe the use of a low level current in terms of not operating or damaging the access device.

The claim language ties low level current to producing a varying voltage level, which is the "preselected condition" of the claim, if the access device can accept remote power. '930 Patent, col. 4:22–29. Network-1's construction is overly broad and inconsistent with the specification because it does not characterize the low level current in terms of producing the preselected condition of the resulting voltage level. Although the specification implies that the low level current will not damage the access device if it cannot accept remote power, this generalized characterization is not

sufficiently explicit to encompass the production of a resulting voltage level of a preselected condition. *See* '930 Patent, col. 1:17–19, 1:54–56.

Defendants' construction does not limit the term to the preferred embodiment. The term is a relative term of degree, so some objective guidance must be provided by the specification, as Network-1 agrees. *See Exxon Research & Eng'g Co. v. United States*, 265 F.3d 1371, 1381 (Fed. Cir 2001). Apart from the preferred embodiment, where the presence of a dc-dc power supply produces a sawtooth waveform, the only objective standard in the specification states that determination of whether an access device can accept remote power is based on a response in the return path to a low level current applied to a circuit. '930 Patent, col. 2:66–3:2. Thus, the only objective benchmark to guide one skilled in the art is a varying voltage level produced in the return path when the access device is beginning to start up, but is unable to sustain start up. This standard is necessary to guide one skilled in the art in determining a "low level current" in the context of the '930 Patent and provides a signpost as to whether an accused device is delivering a low level current from the main power supply. Accordingly, the Court adopts its construction from the *D-Link* case and Defendants' construction and construes the term "low level current" to mean "a current sufficient to cause the access device to start up, but not sufficient to sustain the start up."

Preselected condition

Claims 1 and 6 of the '930 Patent contain the term "preselected condition." Network-1 contends that the term means "any parameters of the voltage on the signaling pair that indicates whether an access device is able to accept remote power from the data node," while Defendants contend that it means "a parameter of the voltage on the signaling pair that indicates whether an access device is able to accept remote power from the data node, where a fixed level voltage drop

or no voltage drop indicates that the access device is unable to accept power from the data node.”

The parties disagree whether the term “preselected condition” requires detectable conditions of the resulting voltage level produced.

Network-1 asserts that Defendants improperly seek to import limitations from the specification. Defendants counter that the specification makes a disclaimer of the conditions of a fixed voltage drop and no voltage drop.

Defendants’ construction does not encompass a disclaimer, but it does improperly impose additional detectable conditions of a resulting voltage level produced in response to a low level current. A “preselected condition” determines whether or not an access device can accept remote power and does not contemplate conditions that might indicate that the access device cannot accept remote power. *See* ’930 Patent, col. 2:66–3:27. Defendants are making a misplaced attempt to include what a preselected condition is not rather than merely stating what it is, so the additional limitation of “where a fixed level voltage drop or no voltage drop indicates that the access device is unable to accept power from the data node” is improper. Network-1’s construction adds “any parameters,” however the claim specifies “a resulting voltage level” on the signaling pair. ’930 Patent, col. 4:24–25. Thus, the specification does not contemplate multiple or any parameters of a voltage on the signaling pair. Accordingly, the Court construes the term “preselected condition” to mean “a parameter of the voltage on the signaling pair that indicates whether an access device is able to accept remote power from the data node.”

Phantom power

Claim 2 of the ’930 Patent contains the term “phantom power.” Network-1 contends that the term means “operating power transmitted over the data signaling pairs that does not affect the

simultaneous transfer of data,” while Defendants contend that it means “operating power transmitted over the data signaling pairs.” The parties disagree whether or not the term “phantom power” relates to the effect of power on data.

Network-1 asserts that the term signifies the transparency of the power to the data. Defendants counter that the term only signifies that power and data are both transmitted over the same signaling pairs.

Network-1’s proposed construction imposes an absolute condition on the phantom power, but the specification does not indicate that there is no effect on the data. Instead, the specification indicates that power on the signaling pairs does not prevent data transmission, and some effect on the data by the power does not prevent suitable data transmission operation over the network. *See* ’930 Patent, col. 1:54–56. Accordingly, the Court adopts its construction in the *D-Link* case and Defendants’ construction and construes the term “phantom power” to mean “operating power transmitted over the data signaling pairs.”

Control means

Claim 1 of the ’930 Patent contains the term “control means.” The parties agree that the term’s function is “to control power supplied by said secondary power source to said access device in response to a preselected condition of said voltage level” and the term’s structure is the “A/D converter and microprocessor 24 and switch 28 and the equivalents thereof.” Network-1 contends that no algorithm is required for the structure or, “if the structure requires an algorithm: the microprocessor executes a two-step algorithm that performs the steps of (a) comparing the voltage on the data signaling pair with a preselected condition, and (b) closing switch 28 based on the comparison of the preselected condition with the voltage on the data signaling pair.” Defendants

contend that “the microprocessor runs an algorithm to: (1) if no voltage drop is detected, identify the access device as unable to support remote power feed, (2) if a fixed voltage level is detected, identify the access device as unable to support remote power feed, and (3) if a varying voltage level is detected, close Switch 28 to control power supplied to the access device.” The parties disagree whether or not the term “control means” requires an algorithm and, if so, what the algorithm is and whether or not an algorithm is sufficiently disclosed.

Network-1 asserts that no algorithm is required because an algorithm is necessary only when a computer is the sole corresponding structure. If an algorithm is required, Network-1 asserts that Defendants’ algorithm limits the corresponding structure to the preferred embodiment and extends the structure beyond what is necessary to perform the control means function. Defendants counter that an algorithm is required and that the ’930 Patent does not provide sufficient disclosure of an algorithm executed by the microprocessor. Defendants further argue that the algorithm must include the three voltage conditions set forth in the specification. Finally, Defendants argue that Network-1’s two-step algorithm is incorrect because it merely states the way the control means function is performed.

A claim is invalid under 35 U.S.C. § 112 ¶ 2 if it fails to particularly point out and distinctly claim the subject matter that the applicant regards as the invention. The party seeking to invalidate a claim under 35 U.S.C. § 112 ¶ 2 as indefinite must show by clear and convincing evidence that one skilled in the art would not understand the scope of the claim when read in light of the specification. *Intellectual Prop. Dev., Inc. v. UA-Columbia Cablevision of Westchester, Inc.*, 336 F.3d 1308, 1319 (Fed. Cir. 2003).

A means-plus-function limitation is indefinite if the specification does not disclose sufficient structure such that one skilled in the art would understand the structure as adequate to perform the recited function. *Id.* To qualify as sufficient structure, the disclosed structure must correspond to the recited function. *Default Proof Credit Card Sys., Inc. v. Home Depot U.S.A., Inc.*, 412 F.3d 1291, 1298 (Fed. Cir. 2005).

A structure disclosed in the specification qualifies as “corresponding” structure only if the specification or prosecution history clearly link or associate that structure to the recited function. *Id.* The corresponding structure does not need to include all necessary elements to enable the claimed invention, but the structure must include all structure that actually performs the recited function. *Id.* Courts consider the entire specification to determine the structure that is capable to perform the recited function. *Id.*

“In a means-plus-function claim in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm, the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm.” *WMS Gaming, Inc. v. Int’l Game Tech.*, 184 F.3d 1339, 1349 (Fed. Cir. 1999). Disclosure of a general purpose computer without a corresponding algorithm renders the means-plus-function claim indefinite. *Aristocrat Techs. Austl. Pty Ltd. v. Int’l Game Tech.*, 521 F.3d 1328, 1337–38 (Fed. Cir. 2008).

Network-1’s argument for a distinction, one based on whether only a computer or a computer plus additional structures is the corresponding structure, is without support in the case law. The distinction is one without a difference because whether the computer stands alone or is combined with additional structures, the structure of the computer itself nevertheless includes its programming.

As Defendants argue, programming of the computer is a necessary element of a computer-based corresponding structure. *See WMS Gaming*, 184 F.3d at 1349. The '930 Patent describes what result the A/D Converter and Microprocessor 24 in combination with the switch 28 accomplish, which is increasing the current to a higher level from the low level initially applied to the data signaling pair. *See* '930 Patent, fig 1. The '930 Patent also gives a generalized indication as to the way the control means performs the function, which is detecting a varying level voltage drop across resistors 26 and 30. *Id.* However, there is insufficient disclosure of the details of a particular algorithm, so that the scope of the control means limitation and where the boundary of infringement and non-infringement lies cannot be ascertained by one skilled in the art.

So long as the disclosure defines structure to render the bounds of the claim understandable to one of ordinary skill in the art, the specification need not disclose a specific formula or mathematical equation, and text or a flowchart may sufficiently disclose an algorithm. *AllVoice Computing PLC v. Nuance Comm'cns, Inc.*, 504 F.3d 1236, 1245 (Fed. Cir. 2007); *see also WMS Gaming*, 184 F.3d at 1347–49; *In re Freeman*, 573 F.2d 1237, 1245–46 (C.C.P.A. 1978) (discussing “algorithm” in the context of 35 U.S.C. § 101). However, if the specification merely states a computer or microprocessor performs the claimed function, the specification does not disclose adequate structure and the claim is indefinite. *Aristocrat Techs.*, 521 F.3d at 1337–38 (holding claim indefinite, as the specification did not disclose sufficient structure where disclosure stated one of ordinary skill in the art could program a computer with “appropriate programming” to perform a “control means” function); *Fisinar Corp. v. The DirecTV Group, Inc.*, 416 F. Supp. 2d 512, 518 (E.D. Tex. 2006) (Clark, J.) (holding claim that included “database editing means . . . for generating . . . and embedding . . .” limitation was indefinite where the specification merely restated that

software performed the recited function); *Gobelli Research Ltd. v. Apple Computer, Inc.*, 384 F. Supp. 2d 1016, 1022–23 (E.D. Tex. 2005) (Ward, J.) (holding claim indefinite where patentee’s proposed structure of “a microprocessor running a procedure call that sets aside resources, such as a memory area” did not set forth an algorithm for performing the claimed “reallocating processing resources as a function of task priority” function); *see also Biomedino LLC v. Waters Techs., Inc.*, 490 F.3d 946, 953 (Fed. Cir. 2007) (holding that claim that included “control means for automatically operating said valving” limitation was indefinite, as the specification merely disclosed a diagram with a box labeled “control” and a stated the invention “may be controlled automatically by known differential pressure, valving[,] and control equipment”). Similarly, the specification does not disclose sufficient structure if it simply describes the outcome of the claimed function and does not disclose a computer programmed to execute a particular algorithm. *Aristocrat Techs.*, 521 F.3d at 1334–35.

To one skilled in the art, the description that “a varying voltage level is detected,” particularly in view of the inclusion of an A/D converter in the control means, suggests that a comparison of a voltage drop measured across resistors 26 and 30 is being made by the microprocessor to some unspecified threshold level in some unspecified manner. *See* ’930 Patent, col. 3:12. Although that comparison is used to detect a varying voltage level so that switch 28 is closed, the algorithm steps executed by the microprocessor to make the detection determination are not described.

Network-1’s two steps accurately follow the written description as to the generalized way the control means operates, but those steps are not the steps of an algorithm executed by the microprocessor. Any algorithm would necessarily take the form of a sequence of steps where the existence of a varying voltage drop across resistors 26 and 30 would be determined or inferred.

Accordingly, the term “control means” is indefinite, and the Court **GRANTS** in part Defendants’ Motion for Partial Summary Judgment of Invalidity for Indefiniteness for the term “control means.”³

At least one data signaling pair connected between the data node and the access device

Claims 1 and 6 of the ’930 Patent contain the term “at least one data signaling pair connected between the data node and the access device.” Network-1 contends that the term needs no construction, while Defendants contend that it means “the at least one data signaling pair connects the data node to the access device.” The parties disagree whether or not the term “at least one data signaling pair connected between the data node and the access device” requires a direct connection between the data node and the access device.

Network-1 asserts that the plain meaning of the claim language “connected between” does not mean “directly connects,” and that there is no disavowal or disclaimer of claim scope. Defendants counter that the specification indicates that the data node and access device are directly connected.

Defendants attempt to rewrite the claim to be limited to the illustrated embodiment, and thus Defendants’ proposed construction is rejected. *See* ’930 Patent, col. 2:44–49. Having resolved the parties’ dispute, *see O2 Micro Int’l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1362 (Fed. Cir. 2008), the claim language is clear to a lay jury who will understand the term “at least one data signaling pair connected between the data node and the access device” and does not require construction. *See Orion IP, LLC v. Staples, Inc.*, 406 F. Supp. 2d 717, 738 (E.D. Tex. 2005) (Davis,

³ In the *D-Link* case, the parties did not dispute and the Court did not resolve whether an algorithm was required for the structure of the term “control means.” *Network-1 Sec. Solutions, Inc. v. D-Link Corp. & D-Link Sys., Inc.*, Case. No. 6:05cv291, Memorandum Opinion and Order (Docket No. 137) (E.D. Tex. Nov. 20, 2006).

J.) (stating that “although every word used in a claim has meaning, not every word requires construction” in declining to construe claim terms).

Continuing to sense voltage level

Claim 9 of the '930 Patent contains the term “continuing to sense voltage level.” Network-1 contends that the term needs no construction, while Defendants contend that it means “continuously sensing the voltage level applied by the secondary power source for remotely powering the access device [or,] alternatively, the claim is indefinite because it is unclear which voltage is being sensed and what the source is for that voltage.” The parties disagree whether the term “continuing to sense voltage level” requires identification of what power source provides the voltage level that is being sensed.

Network-1 asserts that Claim 6 clearly identifies that the voltage level is the one “on the data signaling pair,” so the term is readily understandable. Network-1 further asserts that the claim imposes no requirement as to which power supply is providing the current that produces the voltage level. Defendants counter that Claim 6 recites both main and secondary power sources, so Claim 9 is unclear as to which power source provides the voltage level that is being sensed.

Claim 9 is clearly understandable that the voltage level is the “voltage level . . . on the data signaling pair,” and thus Defendants’ position is without merit. *See* '930 Patent, col. 6:3–4. Having resolved the parties’ dispute, *see O2 Micro*, 521 F.3d at 1362, the claim language is definite and clear to a lay jury and does not require construction. Accordingly, the Court **DENIES** in part Defendants’ Motion for Partial Summary Judgment of Invalidity for Indefiniteness for the term “continuing to sense voltage level.”

CONCLUSION

For the foregoing reasons, the Court interprets the claim language in this case in the manner set forth above. Furthermore, Defendants' Motion for Partial Summary Judgment of Invalidity for Indefiniteness is **GRANTED** in part and **DENIED** in part. The claims with the disputed terms in bold are set forth in Appendix A. For ease of reference, the Court's claim interpretations are set forth in a table as Appendix B.

So ORDERED and SIGNED this 16th day of February, 2010.

A handwritten signature in black ink, appearing to read 'Leonard Davis', written over a horizontal line.

LEONARD DAVIS
UNITED STATES DISTRICT JUDGE

APPENDIX A

U.S. Patent No. 6,218,930

1. Apparatus for remotely powering access equipment in a data network, comprising:
 - a **data node** adapted for data switching,
 - an **access device** adapted for data transmission,
 - at least one data signaling pair connected between the data node and the access device** and arranged to transmit data there between,
 - a **main power source** connected to supply power to the **data node**,
 - a **secondary power source** arranged to supply power from the **data node** via said data signaling pair to the **access device**,
 - sensing means for delivering a **low level current** from said **main power source** to the **access device** over said data signaling pair and sensing a resulting voltage level thereon, and
 - control means** responsive to said voltage level and adapted to control power supplied by said **secondary power source** to said **access device** in response to a **preselected condition** of said voltage level.
2. Apparatus according to claim 1, wherein there are at least two data signaling pairs connected between the **data node** and the **access device** to supply **phantom power** from the **secondary power source** to the **access device**, and wherein said **access device** includes a pair of data transformers having center taps connected for locally powering the **access device**.
6. Method for remotely powering access equipment in a data network, comprising,
 - providing a **data node** adapted for data switching, an **access device** adapted for data transmission, **at least one data signaling pair connected between the data node and the access device** and arranged to transmit data there between, a **main power source** connected to supply power to the **data node**, and a **secondary power source** arranged to supply power from the **data node** via said data signaling pair to the **access device**,
 - delivering a **low level current** from said **main power source** to the **access device** over said data signaling pair,
 - sensing a voltage level on the data signaling pair in response to the **low level current**, and
 - controlling power supplied by said **secondary power source** to said **access device** in response to a **preselected condition** of said voltage level.
9. Method according to claim 6, including the step of **continuing to sense voltage level** and to decrease power from the **secondary power source** if voltage level drops on the data signaling pair, indicating removal of the **access device**.

APPENDIX B

Claim Term	Court's Construction
data node	data switch or hub
access device	a device that can receive and transmit data over a network
main power source	a DC power source
secondary power source	a source of power connected to provide power between the data node and the access device using the data signaling pair. The secondary power source is physically separate from the main power source.
low level current	a current sufficient to cause the access device to start up, but not sufficient to sustain the start up
preselected condition	a parameter of the voltage on the signaling pair that indicates whether an access device is able to accept remote power from the data node
phantom power	operating power transmitted over the data signaling pairs
control means	Indefinite
at least one data signaling pair connected between the data node and the access device	No construction
continuing to sense voltage level	Definite No construction